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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,684	04/21/2004	Mark M. Morita	066243-0248 (141451)	4469

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EXAMINER	
ULRICH, NICHOLAS S	
ART UNIT	**PAPER NUMBER**
2173	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/828,684	MORITA ET AL.	
	Examiner	Art Unit	
	Nicholas S. Ulrich	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/1/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-34 are pending

2. The information disclosure statement has been considered by the examiner. Cited sources A4, A6, and A8 were not scanned and also could not be located from their corresponding web addresses. This results in those particular documents not being considered by the examiner.

Specification

The abstract of the disclosure is objected to because the use of an abbreviated term is not spelled out. CAD should be spelled out in full to represent exactly what it pertains to. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

Claim 1-7, 9-13, 15-21, 23-25, 26-29, and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roehrig et al. (US 2002/0097902 A1) in view of Rogers (US 6970587 B1).

In regard to claim 1, Roehrig discloses a method of displaying a number of computer-detected regions of pathological interest of an anatomical feature, the method comprising:

displaying an image of the anatomical feature *(Fig 10 element 1055 and Paragraph 0057 line 5: The annotation map discussed by Roehrig is a anatomical representation of a breast)*;

and simultaneously displaying with the image a uniquely identified marker corresponding to each computer-detected region of pathological interest *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. The probability values can be used to uniquely identify any of the ROI's)*;

wherein each marker is generated from the image by a computer- implemented detection algorithm *(Paragraph 0044)*

Roehrig fails to disclose each marker configured to incorporate viewable classification data entered by a user.

However, Rogers discloses each marker configured to incorporate viewable classification data entered by a user *(Column 20 line 65 to Column 21 line 2).*

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of

ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality.

In regard to claim 2, Roehrig discloses the method wherein each marker is uniquely identified by a label adjacent to the marker *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. ROI's are identified by their corresponding probability values).*

In regard to claim 3, Roehrig discloses the method wherein the Computer-implemented detection algorithm determines a probability of cancer for each region of pathological interest *(Paragraph 0055: output of the classifier sub-stage is usually the probability information of the detected abnormalities).*

In regard to claim 4, Roehrig discloses the method wherein each marker is configured to visually indicate the probability of cancer determined by the computer-implemented detection algorithm *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map).*

In regard to claim 5, Roehrig discloses the method wherein the color of each marker visually indicates the probability of cancer determined by the computer-implemented detection algorithm *(Paragraph 0065).*

In regard to claims 6 and 7, Roehrig fails to disclose "the method wherein the viewable classification data includes a user selection of the classification data from an electronically displayed menu of alternative classifications" and "the method wherein the viewable classification data entered includes a user-determined classification of the computer-detected region as a false-positive detection".

However, Rogers discloses viewable classification data includes a user selection of the classification data from an electronically displayed menu of alternative classifications wherein one of the menu options is for inputting classification of the computer-detected region as a false-positive detection *(Column 20 line 65 to Column 21 line 8)*.

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality for better classification.

In regard to claim 9, Roehrig discloses the method wherein each marker is configured to be electronically stored with the image in a computer-readable medium *(Paragraph 0047 lines 10-12)*.

In regard to claim 10, 12, and 13, Roehrig discloses a method of interactively displaying a number of unique locations of pathological interest of an anatomical feature, the method comprising:

displaying an image of the anatomical feature *(Fig 10 element 1055 and Paragraph 0057 line 5: The annotation map discussed by Roehrig is a anatomical representation of a breast)*;

simultaneously displaying with the image a uniquely identified marker corresponding to each location of pathological interest *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. The probability values can be used to uniquely identify any of the ROI's)*;

Roehrig fails to disclose "using mouse commands for" "receiving a first user-input command that selects one of the uniquely identified markers for classification", "displaying a menu of user-selectable classification alternatives in response to the first user-input command", "receiving a second user-input command that selects one of the user- selectable classification alternatives" and "modifying the visual appearance of the displayed marker in response to the classification alternative selected by the second user-input command".

However, Rogers discloses a method of receiving a first user-input command that selects one of the uniquely identified markers for classification *(Column 22 lines 16-*

19: Rogers specify the selection for removal of the marker but it should be understood that this is only one embodiment and the same selection could be used for selecting a marker to add classification data);

displaying a menu of user-selectable classification alternatives in response to the first user-input command *(Column 21 line 2: pull down menu)*;

receiving a second user-input command that selects one of the user- selectable classification alternatives *(Column 20 line 65 to Column 21 line 8: It should be understood that the operation of pull-down menu's are well known in the art and it is inherently shown in Rogers disclosure that a second user input would be required to select the particular classification from within the drop down menu)*;

and modifying the visual appearance of the displayed marker in response to the classification alternative selected by the second user-input command *(Column 20 lines 62-64, Column 20 line 65 to Column 21 line 8, and Column 22 lines 10-19: Rogers discusses three ways that the visual appearance of the displayed marker is changed. In one situation an annotation is attached to the marker, another the marker is completely removed altogether, and a third a "+" symbol is associated with the marker).*

Rogers further teaches that a mouse command is used for further classification including selecting the marker and then selecting a classification alternative *(Column 22 line 18 and Column 20 line 65 to Column 21 line 8: Roger does not explicitly disclose using a mouse for navigating the pull down menu but it is inherently shown through the disclosure of the invention).*

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality for better classification using a mouse.

In regard to claim 11, Roehrig discloses the method wherein each marker is uniquely identified by a label adjacent to the marker *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. ROI's are identified by their corresponding probability values)*.

In regard to claim 15, Roehrig discloses the method wherein each marker is configured to be electronically stored with the image in a computer-readable medium *(Paragraph 0047 lines 10-12)*.

In regard to claim 16 and 17, Roehrig discloses a system for displaying a number of unique locations of pathological interest of an anatomical feature detected by a computer-implemented detection algorithm, the system comprising:

storage media including an image of the anatomical feature and the locations of pathological interest of the anatomical feature detected by the computer- implemented detection algorithm *(Paragraph 0047 lines 10-12)*;

a processor coupled to the storage media and operable to generate a uniquely identified marker corresponding to each computer-detected region of pathological interest and a display coupled to the processor and configured to simultaneously display the image of the anatomical feature and each marker *(Paragraph 0030 to 0035: Roehrig discusses a processor and a display)*;

Roehrig fails to disclose "wherein each marker is configured to incorporate viewable classification data entered by a user", "a user-input device coupled to the processor and operable to receive a selection of one of the markers and enter classification data", and "a input device comprises a mouse".

However, Rogers discloses wherein each marker is configured to incorporate viewable classification data entered by a user *(Column 20 line 65 to Column 21 line 2)*;

and a user-input device coupled to the processor and operable to receive a selection of one of the markers and enter classification data, which consists of a mouse *(Column 20 lines 62-64)*.

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality for better classification using a mouse.

In regard to claim 18, Roehrig discloses the system wherein each marker is configured to be electronically stored with the image in a computer-readable medium *(Paragraph 0047 lines 10-12)*.

In regard to claim 19, Roehrig discloses the system wherein each marker is uniquely identified by a label adjacent to the marker *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. ROI's are identified by their corresponding probability values)*.

In regard to claims 20 and 21, Roehrig fails to disclose "the system wherein the viewable classification data includes a user selection of the classification data from an electronically displayed menu of alternative classifications" and "the system wherein the viewable classification data entered includes a user-determined classification of the computer-detected region as a false-positive detection".

However, Rogers discloses viewable classification data includes a user selection of the classification data from an electronically displayed menu of alternative classifications wherein one of the menu options is for inputting classification of the computer-detected region as a false-positive detection *(Column 20 line 65 to Column 21 line 8)*.

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality for better classification.

In regard to claim 23, Roehrig discloses the system wherein the Computer-implemented detection algorithm determines a probability of cancer for each region of pathological interest *(Paragraph 0055: output of the classifier sub-stage is usually the probability information of the detected abnormalities)*.

In regard to claim 24, Roehrig discloses the system wherein each marker is configured to visually indicate the probability of cancer determined by the computer-implemented detection algorithm *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map)*.

In regard to claim 25, Roehrig discloses the system wherein the color of each marker visually indicates the probability of cancer determined by the computer-implemented detection algorithm *(Paragraph 0065)*.

In regard to claim 26, Roehrig discloses a marker for use with a graphical user interface for uniquely identifying a location of pathological interest, the marker comprising:

a unique identifier for the location of pathological interest *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. The probability values can be used to uniquely identify any of the ROI's)*;

and a visual indication of the probability of cancer for the location of pathological interest *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map)*;

Roehrig fails to disclose each marker configured to incorporate viewable classification data entered by a user.

However, Rogers discloses each marker configured to incorporate viewable classification data entered by a user *(Column 20 line 65 to Column 21 line 2)*.

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality.

In regard to claim 27, Roehrig discloses wherein each unique identifier comprises a label adjacent to the marker *(Paragraph 0064 lines 1-3: relative probability values are displayed adjacent ROI's on the annotation map. ROI's are identified by their corresponding probability values).*

In regard to claim 28, Roehrig discloses the marker wherein the visual indication of the probability of cancer for the location of pathological interest is indicated by the color of the marker (*Paragraph 0065).*

In regard to claims 29 and 31, Roehrig fails to disclose "the method wherein the viewable classification data includes a user selection of the classification data from an electronically displayed menu of alternative classifications" and "the method wherein the viewable classification data entered includes a user-determined classification of the computer-detected region as a false-positive detection".

However, Rogers discloses viewable classification data includes a user selection of the classification data from an electronically displayed menu of alternative classifications wherein one of the menu options is for inputting classification of the computer-detected region as a false-positive detection *(Column 20 line 65 to Column 21 line 8)*.

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to input data associated with each determined abnormality for better classification.

In regard to claims 32-34, Roehrig fails to disclose wherein the viewable classification data includes a user-determined classification region as a cyst, nodule, and microcalcification.

However, Rogers discloses wherein the viewable classification data includes a user-determined classification region as a cyst, nodule, and microcalcification *(Fig 41 and Column 21 line 4: Classification information can include type of lesion. A cyst, nodule and microcalcification can all be considered types of lesions)*.

Roehrig and Rogers are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger to Roehrig invention because one of ordinary skill in the art would be motivated to allow a user to specify the type of lesion that the marker corresponds to.

Claims 8, 14, 22 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roehrig et al. (US 2002/0097902 A1) in view of Rogers (US 6970587 B1) and further in view of Ozaki (US 2006/0050943 A1).

In regard to claims 8, 14, 22, and 30, Roehrig and Rogers fail to disclose wherein each marker is configured to visually indicate the viewable classification data by the color of the marker.

However, Ozaki discloses wherein each marker is configured to visually indicate the viewable classification data by the color of the marker *(Paragraph 0090: Ozaki discusses using different colors based on the particular sick portion. It is evident that the color of the marker would change if classification was applied to a marker specifying the type of sickness)*

Roehrig, Rogers, and Ozaki are analogous art because they are both from the same field of endeavor of computer aided abnormality detection in medical imaging. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Roger, Ozaki, and Roehrig invention because one of ordinary skill in the art would be motivated to provide visual indication to a user of the specific classification associated with a marker.

TADESSE HAILU
Patent Examiner